Contents of *Aquaculture*, Volume 107

VOL. 107 NO. 1 — 1 OCTOBER 1992

Announcement from the Publisher vi

Genetics and Breeding

Sperm cells as vectors for introducing foreign DNA into zebrafish
H.-W. Khoo, L.-H. Ang, H.-B. Lim and K.-Y. Wong (Singapore, Singapore) 1

Husbandry and Management

The influence of oyster toadfish (*Opsanus tau*) and crabs (*Callinectes sapidus* and Xanthidae) on survival of oyster (*Crassostrea virginica*) spat in Chesapeake Bay: does spat protection always work?
G.R. Abbe and D.L. Breitburg (Benedict, MD, USA) 21

Effects of pH and salinity on survival, growth and osmoregulation in *Penaeus monodon* Fabricius
G.L. Allan (Salamander Bay, N.S.W., Australia) and G.B. Maguire (Launceston, Tasmania, Australia) 33

Effects of stocking density on production of *Penaeus monodon* Fabricius in model farming ponds
G.L. Allan (Salamander Bay, N.S.W., Australia) and G.B. Maguire (Launceston, Tasmania, Australia) 49

Assessing environmental impacts of finfish aquaculture in marine waters
W. Silvert (Dartmouth, N.S., Canada) 67

A sorting method for eliminating fish larvae without functional swimbladders
B. Chatain and D. Corrao (Palavas-les-Flots, France) 81

Nutrition

Effect of fasting or feeding diets containing different levels of protein or amino acids on the activities of the liver amino acid-degrading enzymes and amino acid oxidation in rainbow trout (*Oncorhynchus mykiss*)
K.-I. Kim, T.W. Grimshaw, T.B. Kayes and C.H. Amundson (Madison, WI, USA) 89

Effects of various levels of wheat bran and mustard oil cake in the culture media on tubificid production
M.T. Ahamed and M.F.A. Mollah (Mymensingh, Bangladesh) 107

VOL. 107 NOS. 2/3 — 15 OCTOBER 1992

Preface and Acknowledgements
P. van Banning (IJmuiden, Netherlands) 118

Experimental study of the virulence of three species of *Vibrio* bacteria in *Penaeus japonicus* (Bate 1881) juveniles
P. Vera, J.I. Navas and M.C. Quintero (Huelva, Spain) 119

Oxidant production by hemocytes of the eastern oyster, *Crassostrea virginica* (Gmelin)
F.E. Friedl and M.R. Alvarez (Tampa, FL, USA) 125
Comparison of five fish rotaviruses by cross-neutralization tests
D.P. Dopazo, B. Novoa, C. Rivas, J.L. Barja (Santiago de Compostela, Spain) and F.M. Hetrick (College Park, MD, USA) 131
Effects of a fungicide on in vitro hemocyte viability, phagocytosis and attachment in the American oyster, *Crassostrea virginica*
M.R. Alvarez and F.E. Friedl (Tampa, FL, USA) 135
Molecular epidemiology of bacterial fish diseases: preliminary study with *Vibrio anguillarum*
C.P. Vivares (Aubière, France), F. Grimont (Paris, France), F. Baudin-Laurencin (Plouzané, France), B. Andral (Montpellier, France) and P.A.D. Grimont (Paris, France) 141
Nucleic acid probes in aquatic bacteriology
C.P. Vivarès (Aubière, France) and J.-L. Guesdon (Paris, France) 147
Development of new methodologies for diagnosis of infectious diseases in mollusc and shrimp aquaculture
E. Mialhe, V. Boulo, E. Bachere, D. Hervio, K. Cousin, D. Noel, T. Noel, M. Ohresser, R.M. le Deuff, B. Despres and S. Gendreau (La Tremblade, France) 155
Mussel (*Mytilus edulis*) treatment against the red copepod *Mytilicola intestinalis*
D. Blateau, Y. Le Coguic (La Trinité-sur-Mer, France), E. Mialhe and H. Grizel (La Tremblade, France) 165
Treatments against the *Vibrio P1*, suspected to be responsible for mortalities in *Tapes philippinarum*
T. Noel, A. Aubree (La Tremblade, France), D. Blateau (La Trinité-sur-Mer, France), E. Mialhe and H. Grizel (La Tremblade, France) 171
Ultrastructural and ultracytochemical observations on *Bonamia* sp. in oysters (*Tiostrea chilensis*), with a consideration of organelle function
P.M. Hine (Wellington, New Zealand) 175
Variation of the defence mechanisms in two groups of mussels, *Mytilus galloprovincialis* Lmk. Seasonal and environmental effects — preliminary results
M.M. Santarem, A.J. Figueras, J.A.F. Robledo and J.R. Caldas (Vigo, Spain) 185
Incidence of bonamiasis in flat oyster, *Ostrea edulis* L., cultured in Galicia (N.W. Spain)
J. Montes, M.J. Carballal, M.C. Lopez and S.G. Mourelle (Vilagarcía de Arousa, Spain) 189
Principal parasites observed in clams, *Ruditapes decussatus* (L.), *Ruditapes philippinarum* (Adams et Reeve), *Venerupis pullastra* (Montagu) and *Venerupis aureus* (Gmelin), from the Huelva coast (S.W. Spain)
J.I. Navas, M.C. Castillo, P. Vera and M. Ruiz-Rico (Huelva, Spain) 193
Diseases of cultured Japanese scallops (*Patinopecten yessoensis*) in British Columbia, Canada
S.M. Bower, J. Blackbourn, G.R. Meyer and D.J.H. Nishimura (Nanaimo, B.C., Canada) 201
Mycobacteriosis in cod (*Gadus morhua* L.) in Danish coastal waters
I. Dalsgaard, S. Mellergaard and J.L. Larsen (Frederiksberg, Denmark) 211
Effects of dietary oxidized fish oil and deficiency of anti-oxidants on the immune response of turbot, *Scophthalmus maximus*
A. Obach and F. Baudin Laurencin (Plouzané, France) 221
Microsporidiosis on *Artemia* (Crustacea, Anostraca): light and electron microscopy of *Vavraia anostraca* sp. nov. (Microsporidia, Pleistophoridae) in the Brazilian solar

salterns
M.A. Martinez (Montpellier, France), C.P. Vivares (Aubière, Fance), R. de Medeiros Rocha, A.C. Fonseca (Natal-RN, Brazil), B. Andral and G. Bouix (Montpellier, France) 229
Transformation of anterior midgut and hepatopancreas cells by monodon baculovirus (MBV) in *Penaeus monodon* postlarvae
G. Vogt (Heidelberg, Germany) 239
An evaluation of anaesthetics for *Ostrea edulis* (L.)
S.C. Culloty and M.F. Mulcahy (Cork, Ireland) 249
Epizootic study in a turbot farm: bacteriology, virology, parasitology and histology
B. Novoa (Vigo, Spain), S. Nuñez (Santiago de Compostela, Spain), C. Fernández-Puentes, A.J. Figueras (Vigo, Spain) and A.E. Toranzo (Santiago de Compostela, Spain) 253
Comparison of the extracellular biological activities of *Vibrio anguillarum* and *Aeromonas hydrophila*
Y. Santos, I. Bandín, S. Nuñez, M. Montero, A. Silva and A.E. Toranzo (Santiago de Compostela, Spain) 259
Survival of bacterial fish pathogens in sea water
A.I.G. Fernandez, L.A. Rodriguez and T.P. Nieto (Orense, Spain) 271
Growth of *Vibrio anguillarum* in different fish sera
R. Mazoy (Lugo, Spain), R.F. Conchas, B. Fouz (Santiago de Compostela, Spain) and M.L. Lemos (Lugo, Spain) 277

VOL. 107 NO. 4 — 1 NOVEMBER 1992

Announcement from the Publisher ii

Review
Steroids and "steroid-like" substances in fish diets
C. Pelissero and J.P. Sumpter (Uxbridge, UK) 283

Husbandry and Management
Egg hatching and metamorphosis to protozoea of *Penaeus chinensis* (Osbeck) by removal of heavy metals from rearing systems with polymeric absorbent
Y.-X. Yuan, C.-N. Gao and D.-X. Zhang (Qingdao, China) 303
Analyses of six years of spotted seatrout (*Cynoscion nebulosus*) pond culture trials
R.L. Colura, T.L. King, J.D. Gray and B.W. Bumguardner (Palacios, TX, USA) 313
Skin injuries and serum enzyme activities of channel catfish (*Ictalurus punctatus*) harvested by fish pumps
J.M. Grizzle, J. Chen, J.C. Williams and J.S. Spano (Auburn, AL, USA) 333

Nutrition
The effect of feeding level on growth and survival of jaguar guapote (*Cichlasoma managuense*) larvae fed *Artemia* nauplii
J. Günther, N. Gálvez-Hidalgo, J. Ulloa-Rojas (Heredia, Costa Rica), J. Coppoolse and J. Verreth (Wageningen, Netherlands) 347
Effects of dietary energy : protein ratio on growth characteristics and body composition of hybrid striped bass, *Morone chrysops* ♀ × *M. saxatilis* ♂
G.R. Nematipour, M.L. Brown and D.M. Gatlin III (College Station, TX, USA) 359

The influence of environmental temperature and dietary factors on utilization of dietary energy and protein in purified diets by alligators, *Alligator mississippiensis* (Daudin)
M.A. Staton (Lae, Papua New Guinea), H.M. Edwards Jr. (Althens, GA, USA), I.L. Brisbin Jr. (Aiken, SC, USA), T. Joanen and L. McNease (Grand Chenier, LA, USA) 369

Physiology and Endocrinology
Effect of thyroid hormones on morphogenesis and growth of larvae and fry of telescopic-eye black goldfish, *Carassius auratus*
P.K. Reddy and T.J. Lam (Kent Ridge, Singapore) 383

Book Review
Seaweed resources in Europe 395

Author Index 397

Contents of *Aquaculture* volume 107 403